PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of

Takako OZAWA, et al.

Docket No: Q76832

Appln. No.: 10/635,640

Group Art Unit: 1773

Confirmation No.: 8806

Examiner: Nikolas J. UHLIR

Filed: August 07, 2003

For: MASTER INFORMATION CARRIER FOR MAGNETIC TRANSFER

DECLARATION UNDER 37 C.F.R. § 1.132

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

I, Masakazu NISHIKAWA, hereby declare and state:

THAT I am a citizen of Japan;

THAT I have received the degree of doctorate in the field of Applied Physics from Tsukuba University in 1996;

THAT I have been employed by FUJI PHOTO FILM CO., LTD. since 1996, where I currently hold the position of staff researcher;

Since 1996, I have had extensive experience in the field of magnetic recording. Based on my experience in this field, along with my educational background, I am familiar with the level of skill as it existed in 2003.

I have reviewed the Specification and Claims of the above application, as well as the Office Action from the USPTO mailed on November 23, 2004.

With respect to paragraphs 14 and 15 of this Office Action, the Examiner notes that the most persuasive evidence which the Applicants could present to overcome the Examiner's inherency argument would be to provide an example of a magnetic thin film that meets the Ra of the Nishikawa reference but does not meet the SRa range required by the instant claims. Further, and in the alternative, the Examiner notes that Applicants could point to evidence establishing the criticality of the claimed SRa. I respond to the Examiner's requests as follows.

1. Difference between SRa and Ra

The center plane mean surface roughness (SRa) of the present invention represents the mean surface roughness in two orthogonal directions (two dimensional plane), whereas the mean surface roughness (Ra) of Nishikawa ('306) represents the mean surface roughness only in one direction (circumferential direction).

The value of SRa and the value of Ra are the same only if the roughness of the surface of the master information carrier is uniformly distributed in both orthogonal directions. However, the condition of the surface of the master information carrier will be different based on how the original plate of the master information carrier is formed, such as the direction in which drawing is made on the resist and the manner in which the pattern is formed on the Si substrate during the etching process which forms the original plate. Therefore, the roughness of the surface of the master information carrier will not be uniform, and, as such, the value of SRa and the value of Ra will not be the same.

For example, as illustrated in Fig. 1 (of attached Appendix), if the direction of the X-axis is circumferential, the Ra is 0.0 nm. On the other hand, if the direction of the Y-axis is in the

circumferential direction, the Ra is 2.5 nm. However, in Fig. 1, the SRa is 1.25 nm. Therefore, the Ra of Nishikawa and the SRa of the present application are clearly different from each other.

2. The Advantage of Forming Roughness on the Upper Surface of Protrusion Patterns

Nishikawa ('028) is silent as to whether the surface of the data area and the upper surface of the protrusion patterns are rough. On the other hand, Nishikawa ('306) teaches that the surface of the data area is rough, but there is no description regarding whether the upper surface of the protrusion patterns is also rough. Therefore, even if Nishikawa ('028) and Nishikawa ('306) are combined, the upper surface of the protrusion patterns would be smooth (see Fig. 3 of attached Appendix).

On the other hand, with respect to the present invention, as illustrated in Fig. 2 (of attached Appendix), the rough upper surface of the protrusion patterns is not obvious from Nishikawa ('028) or Nishikawa ('306) or the asserted combination thereof. As will be explained, employing a rough upper surface to protrusion patterns prevents the deterioration in transferred signals.

When the slave medium is brought into contact with the master information carrier, the lubricant, which is usually used when bringing the slave medium and the master information carrier into contact with each other, attaches to the master information carrier.

The attachment of the lubricant to the master information carrier can cause a deterioration in transferred signals. For example, in Nishikawa ('028) and Nishikawa ('306), the upper surface of the protrusion patterns is smooth, and there are no grooves (see Fig. 3 of attached Appendix) into which the lubricant can flow into. Thus, attached lubricant remaining on the

smooth surface of the protrusion patterns can prevent the master information carrier from being brought sufficiently close to the surface of the slave medium. This causes transfer magnetization defects and deteriorates the quality of signal transfer.

On the other hand, with respect to the present invention, the lubricant flows into the grooves (the rough portions) on the upper surface of the protrusion patterns (see Fig. 2 of attached Appendix). As such, the surface of the master information carrier and the surface of the slave medium can be brought sufficiently close to each other to eliminate the conditions which create deterioration in the transferred signals. Therefore, deterioration in transferred signals can be prevented in the present invention.

I declare further that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of this application or any patent issuing thereon.

Date: March 29, 2005

Masakazu NISHIKAWA

appendix

FIG 1

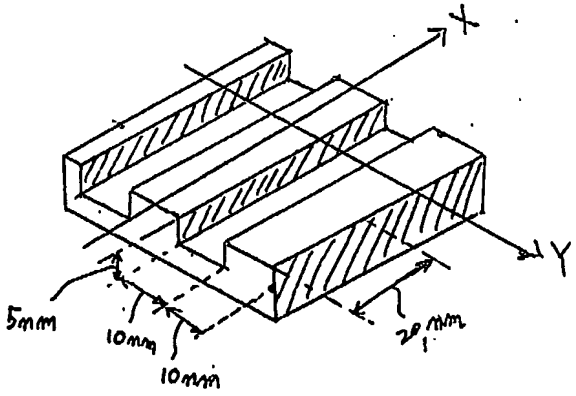


FIG2

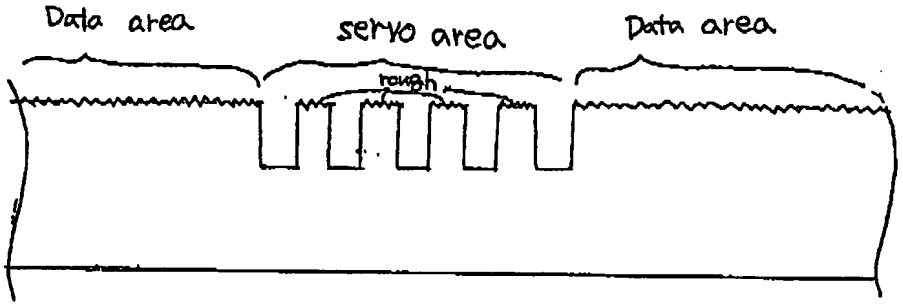
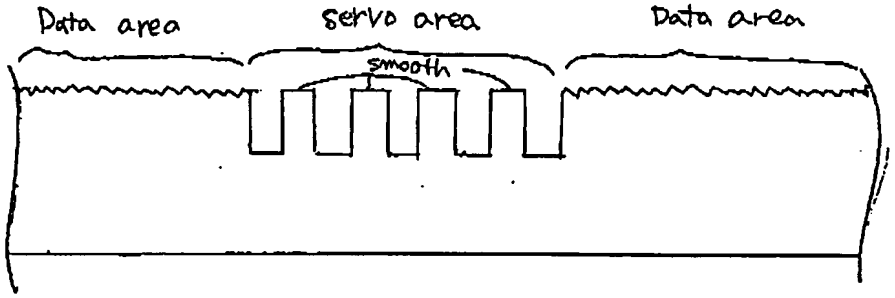


FIG3



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